

THE LEADER IN ENVIRONMENTAL TESTING

# ANALYTICAL REPORT

## TestAmerica Laboratories, Inc.

TestAmerica Nashville 2960 Foster Creighton Road Nashville, TN 37204 Tel: 800-765-0980

#### TestAmerica Job ID: NUJ3363

Client Project/Site: PASUS-Dimock-AMEC-102011 Client Project Description: PASUS - VARIOUS SITES

#### For:

Cabot Oil Five Penn Center West, Suite 4101 Pittsburg, PA 1527641

Attn: Phillip Levasseur

Authorized for release by: 11/7/2011 2:27:55 PM

Ryan Fitzwater
Project Manager
Ryan.Fitzwater@testamericainc.com

.....LINKS .....

Review your project results through

Total Access

**Have a Question?** 



Visit us at: www.testamericainc.com This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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# Sample Summary

Client: Cabot Oil

Project/Site: PASUS-Dimock-AMEC-102011

TestAmerica Job ID: NUJ3363

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
NUJ3363-01	Well 1	Water	10/25/11 15:10	10/26/11 07:35

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#### **Case Narrative**

Client: Cabot Oil TestAmerica Job ID: NUJ3363

Project/Site: PASUS-Dimock-AMEC-102011

Job ID: NUJ3363

Laboratory: TestAmerica Nashville

Narrative

WELL 1

10/25/11 1510

Ex. 6 - Personal Privacy 200.00-1,039.00,000.

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DIM0064659 DIM0064720

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# **Definitions/Glossary**

Client: Cabot Oil TestAmerica Job ID: NUJ3363

Project/Site: PASUS-Dimock-AMEC-102011

Glossary

Abbreviation These commonly used abbreviations may or may not be present in this report.

%R Percent Recovery
CNF Contains no Free Liquid

DL, RA, RE, IN Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample

EDL Estimated Detection Limit

EPA United States Environmental Protection Agency

MDL Method Detection Limit
ML Minimum Level (Dioxin)

ND Not detected at the reporting limit (or MDL or EDL if shown)

PQL Practical Quantitation Limit

RL Reporting Limit

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin)
TEQ Toxicity Equivalent Quotient (Dioxin)

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TestAmerica Job ID: NUJ3363

Project/Site: PASUS-Dimock-AMEC-102011

Lab Sample ID: NUJ3363-01 Client Sample ID: Well 1 Date Collected: 10/25/11 15:10

Matrix: Water

Date Received: 10/26/11 07:35

Client: Cabot Oil

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	210		5.00		ug/L		10/27/11 12:30	10/27/11 13:56	1.00
Propane	ND		5.00		ug/L		10/27/11 12:30	10/27/11 13:56	1.00
Isobutane	ND		10.0		ug/L		10/27/11 12:30	10/27/11 13:56	1.00
n-Butane	ND		5.00		ug/L		10/27/11 12:30	10/27/11 13:56	1.00
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Acetylene	106	-	62 _ 124				10/27/11 12:30	10/27/11 13:56	1.00

Method: RSK 175 - Methane, Ethan	ne, and Ethene by GC - Dis	solved - RE2					
Analyte	Result Qualifier	RL	MDL Unit	D	Prepared	Analyzed	Dil Fac
Methane	7160	100	ug/L		10/27/11 12:30	10/27/11 14:08	20.0

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DIM0064659

Client: Cabot Oil Project/Site: PASUS-Dimock-AMEC-102011

TestAmerica Job ID: NUJ3363

## Method: RSK 175 - Methane, Ethane, and Ethene by GC

Lab Sample ID: 11J6413-BLK1 **Matrix: Water** 

Lab Sample ID: 11J6413-BS1

Analysis Batch: U018963

**Matrix: Water** 

Analysis Batch: U018963

Client Sample ID: Method Blank **Prep Type: Dissolved** 

Prep Batch: 11J6413\_P

	Віапк	Віапк						
Analyte	Result	Qualifier R	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND	5.0	)	ug/L		10/27/11 12:30	10/27/11 13:05	1.00
Ethane	ND	5.0	)	ug/L		10/27/11 12:30	10/27/11 13:05	1.00
Propane	ND	5.0	)	ug/L		10/27/11 12:30	10/27/11 13:05	1.00
Isobutane	ND	10.	)	ug/L		10/27/11 12:30	10/27/11 13:05	1.00
n-Butane	ND	5.0	)	ug/L		10/27/11 12:30	10/27/11 13:05	1.00

Blank Blank

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%Recovery Qualifier Surrogate Limits Prepared Analyzed Dil Fac 62 \_ 124 Acetylene 105 10/27/11 12:30 10/27/11 13:05 1.00

Client Sample ID: Lab Control Sample

**Prep Type: Dissolved** 

Prep Batch: 11J6413 P

Spike LCS LCS %Rec. Analyte Added Result Qualifier Unit D %Rec Limits Methane 273 80 - 120 264 ug/L 97 Ethane 512 495 ug/L 97 80 - 120 Propane 762 708 ug/L 93 80 - 120 993 941 80 - 120 Isobutane ug/L 95 n-Butane 993 948 80 - 120 ug/L

LCS LCS

%Recovery Qualifier Limits Surrogate Acetylene 104 62 \_ 124

Lab Sample ID: 11J6413-MS1 Client Sample ID: Matrix Spike **Matrix: Water** 

Analysis Batch: U018963

**Prep Type: Dissolved** Prep Batch: 11J6413\_P

8	Sample	Sample	Spike	Matrix Spike	Matrix Spil	(e			%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Methane	ND		273	273	*	ug/L		100	46 _ 142	
Ethane	ND		512	500		ug/L		98	71 - 120	
Propane	ND		762	715		ug/L		94	70 - 130	
Isobutane	ND		993	955		ug/L		96	70 - 130	
n-Butane	ND		993	961		ug/L		97	70 - 130	

Matrix Spike Matrix Spike

Surrogate %Recovery Qualifier Limits Acetylene 108 62 - 124

Lab Sample ID: 11J6413-MSD1 Client Sample ID: Matrix Spike Duplicate **Matrix: Water Prep Type: Dissolved** 

Analysis Batch: U018963 Prep Batch: 11J6413 P

	Sample	Sample	Spike	√latrix Spike Dup	Matrix Spil	ke Duş			%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Methane	ND	s	273	274	0	ug/L		100	46 - 142	0.4	33
Ethane	ND		512	501		ug/L		98	71 - 120	0.3	30
Propane	ND		762	714		ug/L		94	70 _ 130	0.1	30
Isobutane	ND		993	946		ug/L		95	70 - 130	1	30
n-Butane	ND		993	943		ug/L		95	70 - 130	2	30

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# **QC Sample Results**

Client: Cabot Oil TestAmerica Job ID: NUJ3363

Project/Site: PASUS-Dimock-AMEC-102011

Method: RSK 175 - Methane, Ethane, and Ethene by GC (Continued)

Lab Sample ID: 11J6413-MSD1 **Matrix: Water** 

Analysis Batch: U018963

Matrix Spike Dup Matrix Spike Dup

%Recovery Qualifier Surrogate Limits Acetylene 101 62 - 124 Client Sample ID: Matrix Spike Duplicate

**Prep Type: Dissolved** Prep Batch: 11J6413\_P

# **QC Association Summary**

Client: Cabot Oil TestAmerica Job ID: NUJ3363

Project/Site: PASUS-Dimock-AMEC-102011

#### **Pesticides**

## Analysis Batch: U018963

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
11J6413-BLK1	Method Blank	Dissolved	Water	RSK 175	11J6413_P
11J6413-BS1	Lab Control Sample	Dissolved	Water	RSK 175	11J6413_P
11J6413-MS1	Matrix Spike	Dissolved	Water	RSK 175	11J6413_P
11J6413-MSD1	Matrix Spike Duplicate	Dissolved	Water	RSK 175	11J6413_P
NUJ3363-01	Well 1	Dissolved	Water	RSK 175	11J6413_P
NUJ3363-01 - RE2	Well 1	Dissolved	Water	RSK 175	11J6413_P

## Prep Batch: 11J6413\_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
11J6413-BLK1	Method Blank	Dissolved	Water	RSK 175/3810	in the second
11J6413-BS1	Lab Control Sample	Dissolved	Water	RSK 175/3810	
11J6413-MS1	Matrix Spike	Dissolved	Water	RSK 175/3810	
11J6413-MSD1	Matrix Spike Duplicate	Dissolved	Water	RSK 175/3810	
NUJ3363-01	Well 1	Dissolved	Water	RSK 175/3810	
NUJ3363-01 - RE2	Well 1	Dissolved	Water	RSK 175/3810	

TestAmerica Job ID: NUJ3363

Project/Site: PASUS-Dimock-AMEC-102011

Client Sample ID: Well 1 Lab Sample ID: NUJ3363-01

Date Collected: 10/25/11 15:10 Matrix: Water Date Received: 10/26/11 07:35

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Dissolved	Prep	RSK 175/3810	30 %	1.00	11J6413_P	10/27/11 12:30	JLS2	TAL NSH
Dissolved	Analysis	RSK 175		1.00	U018963	10/27/11 13:56	JLS2	TAL NSH
Dissolved	Prep	RSK 175/3810	RE2	1.00	11J6413_P	10/27/11 12:30	JLS2	TAL NSH
Dissolved	Analysis	RSK 175	RE2	20.0	U018963	10/27/11 14:08	JLS2	TAL NSH

#### Laboratory References:

Client: Cabot Oil

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Road, Nashville, TN 37204, TEL 800-765-0980

TestAmerica Nashville 11/7/2011

DIM0064726

DIM0064659

# **Method Summary**

Client: Cabot Oil

Project/Site: PASUS-Dimock-AMEC-102011

TestAmerica Job ID: NUJ3363

Method	Method Description	Protocol	Laboratory
RSK 175	Methane, Ethane, and Ethene by GC	- S-	TAL NSH

Protocol References:

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Road, Nashville, TN 37204, TEL 800-765-0980

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TestAmerica Job ID: NUJ3363

Client: Cabot Oil Project/Site: PASUS-Dimock-AMEC-102011

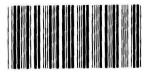
aboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Nashville	- 2	ACIL		393
estAmerica Nashville	A2LA	ISO/IEC 17025		0453.07
estAmerica Nashville	A2LA	WY UST		453.07
estAmerica Nashville	AIHA - LAP	IHLAP		100790
estAmerica Nashville	Alabama	State Program	4	41150
estAmerica Nashville	Alaska	Alaska UST	10	UST-087
estAmerica Nashville	Arizona	State Program	9	AZ0473
estAmerica Nashville	Arkansas	State Program	6	88-0737
estAmerica Nashville	CALA	CALA		3744
estAmerica Nashville	California	NELAC	9	1168CA
estAmerica Nashville	Colorado	State Program	8	N/A
estAmerica Nashville	Connecticut	State Program	1	PH-0220
estAmerica Nashville	Florida	NELAC	4	E87358
estAmerica Nashville	Illinois	NELAC	5	200010
estAmerica Nashville	Iowa	State Program	7	131
estAmerica Nashville	Kansas	NELAC	7	E-10229
estAmerica Nashville	Kentucky	Kentucky UST	4	19
estAmerica Nashville	Kentucky	State Program	4	90038
estAmerica Nashville	Louisiana	NELAC	6	30613
estAmerica Nashville	Louisiana	NELAC	6	LA100011
estAmerica Nashville	Maryland	State Program	3	316
estAmerica Nashville	Massachusetts	State Program		M-TN032
estAmerica Nashville	Minnesota	NELAC	5	047-999-345
estAmerica Nashville	Mississippi	State Program	4	N/A
estAmerica Nashville	Montana	MT DEQ UST	8	NA
estAmerica Nashville	New Hampshire	NELAC	1	2963
estAmerica Nashville	New Jersey	NELAC	2	TN965
estAmerica Nashville	New York	NELAC	2	11342
estAmerica Nashville	North Carolina	North Carolina DENR	4	387
estAmerica Nashville	North Dakota	State Program	8	R-146
estAmerica Nashville	Ohio	OVAP	5	CL0033
estAmerica Nashville	Oklahoma	State Program	6	9412
estAmerica Nashville	Oregon	NELAC	10	TN200001
estAmerica Nashville	Pennsylvania	NELAC	3	68-00585
estAmerica Nashville	Rhode Island	State Program	1	LAO00268
estAmerica Nashville	South Carolina	State Program	4	84009
estAmerica Nashville	South Carolina	State Program	4:	84009
estAmerica Nashville	Tennessee	State Program	4	2008
estAmerica Nashville	Texas	NELAC	6	T104704077-09-TX
estAmerica Nashville	USDA	USDA		S-48469
estAmerica Nashville	Utah	NELAC	8	TAN
estAmerica Nashville	Virginia	NELAC Secondary AB	3	460152
estAmerica Nashville	Virginia	State Program	3	00323
estAmerica Nashville	Washington	State Program	10	C789
estAmerica Nashville	West Virginia	West Virginia DEP	3	219

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

TestAmerica Nashville 11/7/2011

Nashville, TN

# COOLER REC



Cooler Received/Opened On 10/26/2011 @ 0735	NUJ3363
1. Tracking # 3933 (last 4 digits, FedEx)	
Courier: FedEx IR Gun ID 97460373	
2. Temperature of rep. sample or temp blank when opened: 2.5 Degrees Celsius	
3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen	YES NO
4. Were custody seals on outside of cooler?	ESNONA
If yes, how many and where:	
5. Were the seals intact, signed, and dated correctly?	SNONA
6. Were custody papers inside cooler?	ESNONA
I certify that I opened the cooler and answered questions 1-6 (intial)	
7. Were custody seals on containers: YES NO and Intact	YESNO. NA
Were these signed and dated correctly?	YESNONA
8 Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper	r Other None
9 Cooling process: (Ice) Ice-pack Ice (direct contact) Dry ice	Other None
10. Did all containers arrive in good condition (unbroken)?	YESNONA
11. Were all container labels complete (#, date, signed, pres., etc)?	YESNONA
12. Did all container labels and tags agree with custody papers?	YES .NONA
13a. Were VOA vials received?	YES NO NA
b. Was there any observable headspace present in any VOA vial?	YESNONA
14. Was there a Trip Blank in this cooler? YES. NO. NA If multiple coolers, sequer	ice #
I certify that I unloaded the cooler and answered questions 7-14 (intial)	
15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level?	YESNO.NA
b. Did the bottle labels indicate that the correct preservatives were used	YES NO NA
16. Was residual chlorine present?	YESNO. NA
I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial)	_DA
17. Were custody papers properly filled out (ink, signed, etc)?	YES NONA
18. Did you sign the custody papers in the appropriate place?	YES NONA
19. Were correct containers used for the analysis requested?	YES NO NA
20. Was sufficient amount of sample sent in each container?	YES NONA
I certify that I entered this project into LIMS and answered questions 17-20 (intial)	
Learnify that I attached a label with the unique LIMS number to each container (intial)	A
21. Were there Non-Conformance issues at login? YES. NO Was a PIPE generated? YES.	NO#

BIS = Broken in shipment Cooler Receipt Form.doc

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Revised 6/21/107/2011



















# **Chain of Custody Record**

NUJ3363 11/07/11 23:59



AMEC Kemble TestA	merica Labora	atory location:	Pitts	burg	jh	301 A	Alpha C	Drive	/ Pitts	burg	h, PA 1	5238	/ 412-												a de constitue years of	1771
Client Contact	Regula	tory program:			r	DW		-	NPD	ES	1,	RC	RA	U	Othe	r									TestAmerica Laborat	_
Company Name: Cabot Oil & Gas Corporation Address:	Client Project Phillip Levasse					_			Cont								Lab (			Fitzw	ater				COC No:	ories, inc
Penn Center West	Telephone:							Tele	ephon	r:							Telep	hone:	mar discount		- Control					
City/State/Zip:	412-249-3921								-828-								412-3	352-38	36/6	15-30						OCs
Pittsburgh, PA 15276	Email: phillip.levasseur@cabotog.com						Analysis Turnaround Time											1	Ana	yses		For lab use only				
Phone: 412-249-3921	priniip.ievasse	ur@capotog.co	m	-			************	TAT	T if diffi	aem fre	om below		T	+							opar	SS.			Walk-in client	
Project Name (PAD): PASUS-Dimock-Amec-102011											7 3 W					rcury	e e		(TCE)		le & P	Bromide, ALK, TDS, TSS, Nitrate and Hardness			Lab sampling	
TAX MAP ID: 200.00-1,039.00,000	Method of Shipment/Carrier: FedEx							T week							1 Me	Grease	slo	Plus		Ethar	JLK.					
PO #	Shipping/Tracking No:							To Weeks  To Weeks  To Weeks  To Week  To Jays  To Jays								8,245	Oil & C	втех		hane,	mide,/			Job/SDG No:		
			-		Mat	trix		-	Con	tainer	s & Pres	ervati	ives	Sami	ite⊭C	etals	EM,	thyle	Voas		5 Met	Nitr		ļ		
Sample Identification	Sample Date	Sample Time	Air	Aqueous	Sediment	Solid	Other:	H2SO4	IINO3	EH	NaOII ZaAc/	Unpres	Other:	Filtered	Composite≠C / Grab	200.8 Metals	1664A HEM, Oil &	8015B Ethylene Glyols	8260B, Voas BTEX Plus (TCE)	MBAS	RSK 175 Methane, Ethane & Propan	Cl, SO4. Turbidity.	Sulfide		Sample Specific N Special Instructi	
Well 1	10/25/11	1510		x				Γ		x				N	G						3					
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Possible Hazard Identification Non-Hazard Flammable Skin Irritan	nt 「Po	uson B	U	nkno	wn			1	Sampl	e Disp Retur	oosal ( 4 n to Cli	fee r	may be	assessi Dispo	ed if sa	ample Lab	es are i		ed long archive		n 1 m		lonths			
Special Instructions/QC Requirements. Comments:  Landowner=  EDD Lab Report / Level II Data Package sent to Phillip Leva:	sseur, Cabot C	Dil & Gas Corpo	oratio	on, 5	Peni	n Cer	nter We	est, F	Pittsb	urgh	, PA 15	276.														
and Doug Newton, AMEC Environment & Infrastructure, 502 Relinquished by	Company AMEC	town Pike, Ply	mout		e Tiny	je:	/				Receive	l by:				_				Comp	oativ.				Date Time:	
Relinquished by:	AMEC LU/25/II Company: Date Time:							1720 Received by:									Company;							Date Time:		
Relinquished by:	Company:			Date	e Tim	ne:		Received in Laboratory by:								Company:							Date/Time: 10-26-110735	Tena		